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V. *Part of a Letter of Dr Jo. Wallis F. R. S. to the Publisher, concerning the use of the Numeral Figures in England, in the year 1090.*

Aug. 21. 1700.

I Now send you, from Mr *Thomas Luffkin* of *Colchester*, a Draught fig. 6. (as it is was sent to me) of the Window in *Colchester*, (mentioned in the Transactions Numb. 255, for the month of *Aug. 1699*) whereby it appears that the Numeral Figures were here in use in the year 1090.

VI. *A Letter of the Reverend Mr Abr. de la Pryme to the Publisher, concerning Broughton in Lincolnshire, with his observations on the Shell-fish, observed in the Quarries about that place.*

Sir,

I Heartily thank you for your kind acceptance of my last Letter, which you thought worthy to insert into the Transactions: In answer to your further enquiries be pleas'd to understand as follows.

Broughton lies by that *Roman Way*, which I have given you so large an account of in my former Letter.

The Town is small, but ancient, seeming to have been of a *Roman* Original, by its being situate by one of their High-ways, and to have taken its name from some antient Burrow or Barrow thereby. The *Retfords* were Lords of it several ages, until that Sir *Henry Retford* or *Radford* Knight (with the Earl of *Rutland*, the Lord *Clifford*, the Lord *Clinton* and others) about the year 1455 lost it by Attainder of High Treason. One of which *Retfords*, call'd Sir *Henry*, but whether the aforegoing or no I cannot as yet tell, laid formerly in Effigie of White Marble all in Armour, with his Lady by him, in a small Quire on the North side of the Chancel of the Church of the said Town; but was removed in Memory of Man out of the same, and laid in an Arch within the Communion Rails, and their room and place taken up to be the Burying-place of the Worthy, Family of the *Andersons*, now Lords of the Mannor (who are descended from Sir *Edmund Anderson* Knight, Lord Chief Justice of the *Common Pleas* in Queen *Elizabeth's* days, famous for his Uprightness and Love to the Church; whose Ancestors lived at *Flixburrow* in this County) in which is the Effigies to the Life of Sir *Edmund Anderson* Baronet, most curiously cut in White Marble in a Decumbent Posture, leaning his Head on his Arm, and holding a Book in the other Hand, lying upon a great Altar Tomb, adorn'd with many Arms, and Inscriptions.

Which Family of the *Andersons* is divided into several Branches at *London*, *Eworth*, *Manby*, and this Town of *Broughton*, and yet flourishes in great Honour and Riches.

In this Parish are two Stone-pits, or Quarries, very observable. The first is at the East end of the Town, the other in the Field, on the South of the Town. The Stones of the first are not much made use of for Building, being soft and canker'd, but that which they dig them chiefly for, is to get a Clayie substance, or
Earth,

Earth, that lyes under them, to cement and lay the Stones of the 2d Quarry in, of which they build their Walls and Fences. In which Clayie Substance, or Earth, are innumerable fragments of the Shells of Shell-fish of various sorts, of Pectinites, Echini, Conchites, and others, with some bits and peices of Coral branched like that in the Ingenious Mr *Llwyd's Ichnograph.* Tab. 3. No. 94. but that which is more observable, is, that here are sometimes found whole Shell-fish, with their Natural Shells on, in their Natural Colours, most miserably crack'd, bruis'd, and broken, and some totally squeez'd flat by the great weight of Earth that yet lies, and that was cast upon them in the *Noachian Delugè*; some Specimens of which I have here sent in the little Box.

The other Quarry is in the Field on the South side of the Town: It is a hard blue Stone, which in the *Antidiluvian* World was most certainly a pure fine blue Clay, in the Stones of most of which are innumerable petrify'd Shell-fish of various sorts, but so united to the Stone, that it is very difficult to get them whole out, and I have always found that they lye in the superficies of the Quarry, within a foot of the top thereof, and few or none deeper therein. That which is exceeding observable is, that in many places of the Surface of the said Quarry, (which looks rugged and drifted, as Snow does after a storm, and by which one may find what Quarter the Storm or Wind was then in) there are many Shell-fish half in the Stone, half out, just as we see in Rivers and Ponds, that are dry, they will lye half within the Mud, half without. That part which is within the Quarry is entire and whole, but a hard Stone, and that part which is without, which the Petrific Effluviiums did not touch, is consumed and gone, all but a little of the edges, about the thickness of a Barley-Corn, which edges are plain Shell, and have all the

the *Radii* and *Striæ* on them that the common Shells of those sorts of Fishes have.

All these Shell-fish have their Shells on, some of which Shells are exceeding thin, to what other some are. Sometimes the Shells of some of them are in their Petrification so thoroughly united unto and incorporated with the Stone, that they are scarce visible. Others in the same Quarry have a thick white Shell on them petrify'd, but not incorporated and turned into the substance of the Bed in which they lye. As you get that Fish out, all the Shell sticks so fast to the Rock, that most commonly it is left behind, but sometimes the Shell cleaves in two, on half of the Shell on both sides of the Fish sticks thereto, and the other half to both sides of the Bed, but others come out by lying in the Air in frosty nights, with the whole natural Shell on them, and the *Radii* or *Striæ* very exact. Other Fish there are here that have a black smooth Shell on them, with several *Striæ* but no *Radii*, very like, if not the same with the *Concha Nigra Rondeletii*, figured in *Gesner de Piscib.* p. 237.

I have also seen and found in this Quarry some Shell-fish half open, just as they will be in the bottom of a Pond when the Water has left them, and yet filled with the matter of the Bed in which they lye, and petrify'd with it.

Others being in heaps together, I have found some of them broken, others bruised, and the edges of one Fish thrust into the sides of another, some with the one Shell thrust half way over the other, &c. and so petrify'd in the bed together.

Others in the same Bed have been so close, that the matter of the Bed (which I take to have been a fine blue Clay in the *Antidiluvian* World or in the *Noachian* Deluge) could not insinuate itself into them. These that are thus found, are some of them totally empty.

empty, others are filled with Cristalin Fluors ; others I have seen half full of the said bluish Clay of the Bed, and half full of the said Cristallizations, which have stuck therein, from nothing but subterraneous heats and effluvioms.

Amongst these Fish in this Quarry, I have seen several great Horse-muscles, such as breed in fresh Water Rivers and Ponds, which are exactly like that in *Gefner de Pisc.* p. 231. called *Concha Longa Rondeletii*, but are more thick, full and pubble, than ours commonly are at this day, which greatness and largeness proceeded from nothing but the fertility and fatness of the Bed on which they breed ; and as if these Beds yet had for all that they are turned into Stone, some virtue to the enlarging of this sort of Shell-fish, so there are at this day in an old Pond beyond *Broughton Hall*, some of the largest sort of this Shell-fish that ever I saw, as if this Soil agreed better to the breeding of this sort of Fish than any else.

Just as some sorts of Fish breed best upon some sorts of Soils, as the *Cornu Ammonis*, *Nautili* and others, upon Allum Soils, and that is the Reason that they are found so much at *Whitby*, *Roche*, *Lunenburg*, *Rome*, and other places, where are famous Allum Mines. And if any one would find any of those sorts of Fishes, (which some Learned Men have ridiculously thought to be Species totally lost) they ought in all probability to seek for them upon Allum Soils in the Sea, and there they would undoubtedly find them.

Other sorts of Shell-fish, as Muscles, and some sorts of Coclites, love a Rich Clayey Soil, and there they breed best, as we commonly see in fresh Waters, Rivers and Ponds. Here it is that they are found in such plenty in the aforesaid Stones of the Quarry of *Broughton*, which manifestly appears to have been a Bed of a tough bluish Clay, in some *Antidiluvian* Lake

Other sorts of Shell-fish love a Stony Gravelly Soil, others a Chalky Soil, others a Rocky Soil, others a Lime-stone, or Salt Soil.

Others love an Oazey Soil, a sort of a confused mixture of all the foregoing, as part of the Country about *Frodingham*, *Brumbee*, *Ashbee*, *Botsworth*, &c. In this Country, and joyning in part upon this Parish of *Broughton* seems to be, in the Fields and Stones of which Towns is one particular sort of Fish, which I know not what Genus or Species to compare to, bending somewhat like a Ram's Horn, and exactly creas'd like one on the outside, with an *Opusculum* thereon, which the Fish opened and shut as it had occasion; a most elegant Specimen of which I have sent you. The Bed whereon the said Shell-fish bred in the *Antidiluvian* Sea, is not over a foot thick (to the best of my memory) in all which, but for the most part in the superficies thereof, are millions of the said Fish sticking half within the Stone half without, which Shell-fish having a most durable Shell, that part that sticks out of the Stone, is not consumed, as in the Shell-fish of *Broughton*, but remains whole and-entire.

And yet for all that, this sort of Shell-fish has an exceeding strong Shell, as hard as Stone itself. Yet I have seen and found whole Lumps of them, that by some huge Weight cast or fallen upon them in the *Noachian* Deluge, have been miserably broken and shattered in pieces, and so Petrify'd in the Bed as they lay; a specimen of which I have sent you.

In the Parish of *Broughton* aforesaid in the loose Earth above the aforesaid blue Quarry, and elsewhere, I have found in a whitish Stone the *Echini Galeati Puncticulati Llyudii*, the *Turbinites Major Llyudii* Tab. 7. N. 341. the *Cocclites LewisVulgator Llyudii* T. 7. N. 322. in blue Stone, the *Concha altera Longa Rondeletii*, exactly agreeing to the Picture and bigness thereof in

Gesner

Gesner de Piscibus p. 231. only the *Neb* is much longer. I have found also multitudes of *Belemnites*, great and little, perforated and flat at the Root, by which they grew in the *Antidiluvian* Sea, unto some of which I have found little Shell-fish sticking.

From all this, and from the like petrify'd Shell-fish, of all sorts of Creatures found lodged in Rocks and Stones, and the Bowels of the Earth over the whole World, it does most fully and sufficiently appear, that there was a time when that the Water overflowed all our Earth, which could be none but the *Noachian* Deluge.

It appears also that in that Deluge the Earth suffered wonderful great violence and force, that Seas were raised into Mountains, and Mountains sunk into Seas, that Beds of Shells had sometimes such Weights of Earth, and pieces of Mountains, and Rocks flung upon them, that they were crushed in pieces, and others squeez'd flat, &c.

Now the difficult thing is how this Deluge happened, and how these Shells come thus to be found over the face of the whole Earth, and even deep in its bowels. I know very well the great disputes and contests that are amongst the Learned, concerning these two particulars, and what wonderful Systems and Theories they have formed to solve the same, all which have a great deal more of Art than Nature in them.

My notion of the *Antidiluvian* World is, that it had an external Sea as well as Land, and Mountains, Hills, Rivers, and Fruitful Fields and Plains, that it was about the bigness that our Earth is at present of ; and that when God had a mind, for the wickedness of the Inhabitants that dwelt thereon, to destroy the same by Water, he broke the Foundations and Subterraneous Caverns and Pillars thereof, with most dreadful Earth-quakes, and caused the same to be for the most part, if

not wholly absorb'd and swallow'd up, and covered by the Seas that we now have, and that this Earth of ours rise then out of the bottom of the *Antidiluvian* Sea in its room ; juſt as many Iſlands are ſwallow'd up, and others thruſt up in their ſtead.

Neither is this at all contrary to the Scriptures, but the moſt concordant to it of all others. *Moſes* ſays, that the ſame day that *Noah* and his Family, and all the Creatures that ſhould be ſaved, entered the Ark, that then the Rains began to fall, and preſently after the Fountains of the great Abyſs were broken up. That is, it rained very hard, and the Foundations of the Earth being diſſolved, the Earth begun to ſubſide, ſink down, and yield, and to preſs upon the great ſubterraneous Caverns of water, which thereupon all broke out, and ſprung up, and ſo overflowed, and by degrees drowned their whole World. And the Waters prevail'd continually, ſays *Moſes*, v. 18. that is, by reaſon of the Earth's further ſinking ; for the more and the deeper it ſunk in, the higher did the Waters riſe above it : ſo that at the laſt they covered the tops of the higheſt Mountains that were in the *Antidiluvian* world fifteen Cubits upwards, and every thing that moved upon the face of the whole Earth dyed. And then, as this old Earth ſunk in, ſo our new one was lifted up to ballance the ſinking of the other, and as it aſcended, the Waters rolled from off it continually, and in 150 days it became free of them, and the Ark reſted itſelf upon, or rather againſt the Hills, which were afterwards called *Arrarat*.

Thus in moſt probability was the old World drowned and deſtroyed, and thus had we that whereon we now dwell in its place, and that which *Plato* tells ſome 6 or 700 years before Chriſt's time, That in old times there was a huge Iſland much bigger than *Aſia* and *Africa* put together, abounding with all the delights.

delights of Nature, swallow'd up in the *Atlantick* Ocean by dreadful Storms, and a huge Earthquake and Flood, I question not at all, but that this was the *Antidiluvian* World that they meant, a very great part of which was absorb'd and drowned there, which account thereof they might have both by Books and Tradition from their Fore-fathers, seeing that one of them that was in the very Ark, was the first that peopled *Egypt*.

From this happy system of the Flood, all those things are easily solved that were hard and difficult before, there needs not that great and immense Quantity of Waters to work the Effect that was absolutely necessary in all former solutions of the Deluge, &c. And thus it comes to pass that we find Shells and Shell-fish, and the Bones of other Fishes and four-footed Creatures, and Fruits, &c. petrify'd and lodged in Stone, Rocks, Mountains, Quarries and Pits over our whole Earth; for it was then the proper Place for them to breed in, and upon, and to be found in and upon at this present.

So that it is no wonder that the aforesaid things are found, as they commonly are in Beds and Quarries in Hills, and Mountains, and in the Bowels of the Earth; for here they bred in the *Antidiluvian* Sea, thither they were elevated with the Hills and Mountains in the time of the Deluge, there they fell into, were absorb'd, and bury'd in Chasms, and Holes, and Clefs that would necessarily happen in the thrusting up of the Earth, and be found in the Soil that was flung and carried with wonderful Violence and Confusion from one place to another, by the working of the Waters, and the ferment and hurry that they were put into.

And as all Countries were thus raised out of the bottom of the *Antidiluvian* Sea and Lakes, so that part of the Country about *Broughton* aforesaid, appears mani-

festly in the *Antidiluvian* World, to have been the bottom of some fresh Water Lake, because that those are fresh Water Shell-fish that are found there, and the bed upon which they breed, was a fine blue Clay, which is the colour of the Stone to this day, which Bed being elevated and lifted up, (and dash'd over with other Earth in the workings of the Waters, and the great hurry and confusion that then happen'd) the said Bed by the power of the subterraneous Elevating heats, steams, and Effluvioms were turned by Degrees into Stone with all the Fishes therein.

I have before told you, that some of the Shell-fish in the same Bed, are not full of the matter of the Bed, but of fluors, tho such are not very common : Some might wonder, seeing that the Shells are closed, that the Matter of the Bed could insinuate itself into them ; but that is nothing, but what is common in like cases, for I have frequently seen in the bottoms of Ponds and Rivers, where such Shell-fish in plenty are, that when the Fish is dead and consumed, and the Shell in the Mud, with the Edges as close as if the Fish was alive, that nevertheless the Mud or Clay will by degrees insinuate and fill the same, and now if the bottom of any one of the said Rivers or Ponds was raised by Earthquakes, and turned into Stone by petrific Effluvioms, they would exactly be found as these are.

That many Shell-fish suffered such wonderful great violence and force in the said great Flood ; inasmuch, as to be crush'd, and bruised, and squeez'd flat, as some of those manifestly are, that I have sent you, is likewise nothing strange or wonderful, if we do but consider the great pieces of rising Rocks, and Hills, and Mountains, that must needs roll down and fall in such a general hurry and confusion as that must needs have been in the Quarry, at the East end of this Town of *Broughton*, where fragments of Innumerable Shells are found,

found, and some Shell-fish squeez'd flat, all which are natural, and not petrify'd. There was in the Deluge flung upon the same a huge Bed of a mix'd confus'd substance, now turn'd into a whitish soft canker'd Stone, and upon that was cast vast quantities of Earth, all which weigh'd and press'd the tender Shells so much, that they squeez'd some flat, and broke others to pieces, as we find them to be at this day.

I have a hard Stone part of the aforefaid blue Quarry, with little bits of Wood.coals therein, and whole Leaves of *Vaccinia*, or Whortle-berries, such as grows upon Heath very exact, and Mr *Llwyd* and the *Miscel. Cur.* in *Germany* for the last years gives us several large accounts of whole Leaves and Plants found in Stones and Rocks, and deep in the Bowels of the Earth, some folded, some plain, some Imperfect, all which is very easily solvable, having in that general confusion and hurry been seiz'd upon, and embody'd in Lumps of Clayie and other Matters, and others catcht and intercepted in Rolling Beds of Earth, as they tumbled down from rising Hills and Mountains, and so lodged deep in Chasms of the Ground and petrified, and so preserv'd unto this day.

Many other solutions of *Antidiluvian Phenomena* might be here given, but that I fear I have trespass'd upon your Patience by being so exceeding tedious already, therefore willl (tho somewhat abruptly) conclude, and subscribe my self in all sincerity,

Hull, Sept.
the 14th. 1700.

Your, &c.